

The Skyscraper

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Amateur Astronomical Society
of Rhode Island

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The Skyscraper

May 2006

May Meeting with Dr. George Greenstein

FRIDAY, MAY 12TH AT SEAGRAVE OBSERVATORY

Dr. George Greenstein of Amherst College and Five College
Astronomy
Department

Dr. George Greenstein, Department of Astronomy at Amherst
College, will present "Collision With an Asteroid? Averting a
Planet-Wide Catastrophe", the danger of an impact with an asteroid
and the work that is underway to avert this danger.

MAY 2006

6
SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

12
FRIDAY

7:30PM **May Meeting**
Seagrave Observatory

13
SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

20
SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

27
SATURDAY

8:00PM **Public Observing Night**
Seagrave Observatory,
weather permitting

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President's Message

Dave Huestis, President

Welcome home to our Skyscraper associates who recently travelled to New Mexico. Dan Lorraine promises that he and Rick Lynch will provide us a recap of their exciting journey.

Thanks to Donna Gaumont for her contribution to our "How I Became an Amateur Astronomer" series. We want to hear your story. Let me know if you can contribute to the June issue of the Skyscraper.

A quick reminder that dues were payable in April. We ask that you please fill out the renewal form in its entirety so we can insure our records are complete. You may pay your dues at any meeting or you can send it to our mailing address. Please continue to support our organization. Make checks payable to Skyscrapers, Inc.

And please don't forget that our May meeting is on Friday, May 12.

We are pleased to have as our guest speaker, Dr. George Greenstein, who will present a talk entitled, "Collision With an Asteroid? Averting a Planet-Wide Catastrophe". He will explore what influences fuel the creative fire of genius. Dr. Greenstein's presentation will begin at 7:30 pm.

Following the talk we will break for refreshments and then hold our business meeting.

Hope to see you at our May meeting.

Announcements

Dave Huestis, President

To All Skyscraper Members,

With spring finally here, I thought we could start planning some day trips to planetaria, observatories or museums, etc.

Currently I am working on a trip to Whitin Observatory at Wellesley College in Massachusetts. We're just trying to lock in a date.

Another possible trip was brought to my attention by Fred Surowiec, formerly of the Cormack Planetarium at the Roger Williams Park Museum, and now Education Specialist at the Harvard Museum of Natural History. This is what he wrote to me: "

I just thought you or someone in the club would like to know that the Harvard Museum of Natural History's meteorite exhibit has reopened and now includes over 30 meteorites on display! Many of the specimens are large: some totalling hundreds of pounds. There is even

a Martian meteorite found in Antarctica. In addition, there is a video machine continually playing a video about meteorites as part of the exhibit. The exhibit has not only been expanded, but has been relocated to the main Rock and Mineral Display Hall on the main (3rd) floor of the HMNH. Please come by, either singly or as a group or groups. I think you will enjoy it."

For some very specific and limited days and times there is no fee. At other times we would have to register and pay a rate of \$6.50 per person. We might try to combine this location with another place of interest in the Boston Area. I would like to know if you would be interested in this trip, and if so, what other places you would like to include on the itinerary that same day. Please email me with your thoughts.

Also, if you have any other suggestions on what other venues we could visit for a day trip in the New England region, please send your ideas to me at my email address, or call me at 401-568-9370. And, if you would like to help organize any of these trips, by all means please feel free to volunteer your services.

Thanks for your input.

To All Skyscraper Members,

A few weeks back we hosted our 4th movie night at Seagrave Observatory. The sci-fi movies so far have been chosen by Dan Lorraine and myself.

Now it is your turn to suggest some selections. Take a little time and come up with a short list of sci-fi movies or astronomy/space science documentaries (no more than 5) you'd like us to share with other Skyscraper members during movie night. I will compile a list of top vote getters.

All I ask is that you only vote if you plan on attending.

Email your list of movies to me.

Our next movie night will most likely be in May, so put on your thinking caps and come up with some good titles.



Photos of Comet 73P Schwassman-Wachmann 3 by Bob Horton.

Astronomy, My Passion

Donna Gaumond

I grew up, the oldest of nine children in a rustic neighborhood in Cumberland, RI. As a tomboy, I hiked in the woods and dreamed of living as an Indian with nature. I was a voracious reader and read primarily, ancient history, biographies, historical accounts of Indians, and anything having to do with science. When I was twelve, I wrote to President Nixon about my feelings about the mistreatment of Indians. I received a response from the Bureau of Indian Affairs! What a shocker for a twelve year old kid! I planned on a future as an archaeologist, geologist, anthropologist, a teacher of Indians on a reservation, or a scientist. I had BIG dreams.

Surrounding a small black and white television, my parents, sisters and brothers and I watched as Buzz Aldrin and Neil Armstrong make their historic landing on the moon. It was my twelfth year and it was at that moment that I added astronomer and astronaut to my list of future occupations. My interest in astronomy was piqued and I added a telescope in addition to my microscope in my scientific arsenal. Unfortunately, I did not know anyone who shared my interest so I traded my telescope for a bicycle.

While camping each summer with my family throughout my childhood, I was fascinated with the stars in the night sky. From reading, I had some familiarity with constellations and planets in the sky, but I did not pursue this study...I would just look in wonder at the sparkling gems.

Lying on the cool ground in an apple orchard with a friend in August one year, I had my first experience with a meteor shower__ the Perseids. I looked in awe at the bright streaks of white light radiating out from one area of the sky! I delved deeper into my study of astronomy through reading.

My life became more settled as my daughter matured and I ordered Astronomy Magazine. It was by reading this magazine that I bought my first pair of Orion binoculars. Along with my first glow-in-the-dark star map and my binoculars, I began my study of deep sky objects and the constellations. My family was hounded by me to see Andromeda's galaxy, star clusters, the nebula in Orion, and a host of other 'discoveries'. Unfortunately, they did not share my interest until the year of the comets. In 1997, when Comet Hale-Bopp graced the night skies, my husband, daughter, son and many of my neighbors



Donna Gaumond with Apollo 12 astronaut Captain Alan Bean

were transfixed when I pointed my binoculars at the comet showing a split tail. This actually convinced my neighbors to turn off their lights when I observed!

My independent study must have been adequate as evidenced when I took my first course, Highlights of Astronomy at CCRI. I was so excited about taking the course that I bombarded the professor with questions which she did not appreciate. At one point, after practicing astrophotography at the observatory, I walked with my professor to her car to ask a question that I had held during the class. In an irritated voice she replied sharply, "You need to take a more advanced course. This course is not for you!" I kept quiet after that.

It was while reading my Astronomy magazine that I saw a listing of amateur Astronomy Clubs. There was one in Scituate, RI! I was at the next monthly meeting with my husband... and I joined. Finally I could be with people who were knowledgeable and had a passion about the cosmos! I was actually shy the first few years being among mostly men and driving alone to the club, so I wasn't very active.

My yearly Star Parties at Metcalf School began when I exposed my enthusiasm for astronomy to my third grade students. Even though it was not part of our curriculum the superintendent gave me permission and financing for the books I needed to teach the subject through literature. Along with the Star Parties, I became involved with the Space Grant at Brown University and had yearly speakers to

further amaze my students. One of these speakers, Clara Eberhardy, was involved with the Deep Impact Mission with Comet Temple and is currently at the JPL analyzing the data received. She was also a speaker at the Skyscraper monthly meeting in April, 2006!

Last year my self-confidence grew with my increasing age. I became a more active member of the club. I have enjoyed and learned so much at the monthly meetings while listening to the incredible speakers. At the Astro-Assembly last year, I had the pleasure to sit beside Story Musgrave during dinner and hear his inspiring presentation. I went to a function with other club members where again

I was spellbound watching the moving presentation by Alan Bean, the fourth man on the moon!

Observing the transit of Venus at Point Judith was a once in a lifetime experience! I was lucky enough to attend workshops presented by Dr. Peter Shultz concerning the up-coming Deep Impact mission, became certified for using moon rocks in my class, and spent three days at Brown University learning about the sun-earth connection from NASA scientists. Hopefully, when life slows down, I will go along one of the Skyscraper trips. I can't even imagine the surprises in store for me in the future.

Greece Eclipse Expedition

Gregory T. Shanos

March 20, 2006 — Departed Tampa International airport Delta (Song) airlines at 12:00 noon for JFK Int. Airport in New York City. Technical problems with the airplane necessitated a two hour delay in liftoff. We departed Tampa for JFK at 1:51 p.m. Arrived in NY at 4:00 p.m. Delta flight to Athens was at 5:30pm so we still had plenty of time. The movie on the plane was Harry Potter and the Goblet of Fire. After an in-flight dinner I slept through most of the nine hour trip.

MARCH 21, 2006 — Arrived in Athens at 10:00 am local time or 3:00 AM Florida time. We waited at the airport for about an hour for another flight to arrive. We were transported by bus (a 40 minute drive) to a five star hotel named the Elektra Palace. We could see the ruins of the Acropolis from our hotel room. The remainder of the day was spent walking the streets of Athens. The Hard Rock Cafe was within walking distance of the hotel. Purchased a T-shirt. We ate at McDonalds which also serves beer! We witnessed the Greek Soldiers changing of the guard in front of the Congressional building. Retired early this evening due to jetlag. A bussed city tour awaits tomorrow.

MARCH 22, 2006 — Our city tour began with the Crown jewel of Athens the Acropolis and the Parthenon. Our translator Marina gave us an excellent history of Hellenic culture from the Neolithic through classical Golden age then into Modern Times. We walked around the Parthenon from the eastern facing entrance the western facing rear and along both sides. What a marvel to behold. The Parthenon and current surrounding buildings are currently in the processes

of being restored. There is much scaffolding and surrounding iron framework which distracts from the beauty of the Parthenon. Next we took a tour of a museum that was on the grounds of the acropolis. This museum housed many statues that would otherwise erode and be lost forever. Photography was allowed without flash. This was not a problem for my digital Nikon D70 6.1 megapixel camera. Not to brag, but this was my third visit to the Acropolis; I was there in June 2004 while I visited my family on the island of Corfu for the Transit of Venus and in 1983 when I spent a summer in Corfu. The city tour continued as we were bussed throughout the city to view various buildings. The tour was a half day excursion which terminated 1:00 p.m.. My wife & I visited a nearby museum called the Benaki Museum. Spent three hours viewing many antiquities from the Neolithic through the 20th century. Had a light dinner and slept for a couple of hours due to jet-lag kicking in. Relaxed that evening and packed for tomorrow's excursion to Delphi.

MARCH 23, 2006 — Our first stop was Delphi. Delphi was a 3 hour bus ride from Athens. When we arrived at Delphi, our first stop was the museum. Photography was allowed, so my wife took the digital photos while I videotaped the presentations given by our tour guide. The stone monuments and antiquities unearthed at this site were incredible. Delphi was the major religious center of ancient Greece. Delphi was dedicated to the God Apollo. Kings, statesmen, and ordinary men from throughout Greece regularly came here to seek the Oracle of Delphi. This was a female priestess called a pythea

that inhaled fumes from the earth, chewed on laurel leaves (got high) then spoke in riddles which were interpreted by the male Priests as the person's future or prophecy. These oracle prophecies were taken as the word of Apollo and strictly followed by the King or individual. Delphi is set on the beautiful mountain of Mt Perias. We walked through the ruins of ancient Delphi. What a spiritual experience. It soon began to rain, fortunately my wife brought along two ponchos. After the short rainfall, a rainbow appeared. What a photo opportunity with a rainbow set among the ancient ruins of Delphi. Next the bus stopped a short distance down the mountain to the temple of Athena. This was a smaller temple with three erect columns. It soon drizzled and another rainbow appeared! Another excellent photo opportunity. We spent the night in Delphi. The evening was much cooler than in Athens. Our next stop tomorrow Olympia.

MARCH 24, 2006 – Our next stop on the Classical Greek tour was Olympia, the place where the Olympic Games originated. Olympia is a 4.5 hour drive from Delphi. We proceeded down Mt Perias and could now see the Mediterranean Sea. When we arrived at Olympia, our first stop was the museum. Photography was allowed, so my wife took the digital photos while I videotaped the presentations given by our tour guide. The stone monuments unearthed at this site were indescribably beautiful. Like Delphi, Olympia was a pilgrimage to Zeus. The Olympic Games began in 776 BC and continued uninterrupted every five years for 1500 years. I stood at the spot where the modern Olympic flame is lit and carried to Athens. The original tracks where the ancient Greeks ran were still in tact. In fact, the tourists were allowed to run or jog this track if they wished. The track was 192 meters in length. I sprinted 192 meters then jogged back the rest of the way. It was an absolute thrill to run on the same track that my ancient Greek ancestors did thousands of years ago. We spent the night in Olympia. Onward to Naphplio tomorrow.

MARCH 25, 2006 – We boarded the bus for Naphplio at 8:30am. Naphplio was the old Capital of Greece from 1830 to 1874. It was then moved to Athens. March 25, 1830 is Greek Independence Day from the Ottoman Turks. All stores & Government buildings were closed. We stopped at Megalopolis to witness how the Greeks celebrate this day. There was a parade of the local school children grades K thru 12 along the main street of each city of Greece. In addition the leaders of the community placed a wreath of laurel leaves next to a statue honoring the

Unknown Soldier. Weather today was extremely overcast. It rained later in the day. After the parade we boarded the bus and headed toward Napoli. After a quick lunch we soon stopped at a museum reproduction shop. I purchased a replica of the Gold Mask of Agamemnon. We now arrived at the city of Napoli. It was drizzling at this point; however, this did not stop the tour. Napoli is at sea level within the Aegean Sea. There were three historic forts at the site from the 1800's we walked through the narrow streets of the city and admired the architecture of the buildings while raindrops kept falling on my head. Next checked into the Amalia Hotel. Tomorrow we visit ancient Mycenae.

MARCH 26, 2006 – Greek daylight saving time starts today. Spring ahead. We departed on a rainy day for ancient Mycenae which was an hours drive. By the time we arrived at Mycenae. The rain had stopped yet it remained overcast. Ancient Mycenae was a sight to behold. This city is ancient 16th century BC. The ruins are surrounded by high walls known as Cycladic Walls. Above the entrance gate were two lions. The heads are missing since they were made of solid gold and there whereabouts are unknown. Schliemann excavated the site in 1830's. The site boasts the famous gold mask of Agamemnon. However, this city dates to before the time of Agamemnon. Next we visited the nearby Honeycomb Tomb. This was an impressive structure. We boarded the bus and headed to the famed theatre of epiderus. This treasure dates back to the Classical Period of Greece. The theatre holds 15,000 people and is acoustically perfect. Sound was easily heard throughout the entire theatre. We then had a lunch at the local restaurant. Then we drove for two hours to The Corinth Canal. This canal was cut through the Peloponnesus and now connects the Ionian Sea with the Aegean Sea. There were also people Bungee Jumping into the canal. An hour drive later we were in Athens. Checked back into the Electra Palace Hotel. We packed our luggage for the cruise ship tomorrow. The eclipse is now only three days away.

MARCH 27, 2006 – We boarded a bus and headed to the Port of Piraeus in Athens. We had to check in our luggage airport style with X-ray machines and even walked through a metal defector. Astronomical Tours changed ships at the last minute and this turned out to be a mess. Some people paid for expensive cabins and were given smaller ones. The worst occurred when approximately 50 people were overbooked and there were no cabins. Some had

to double up with other couples while others slept on the couches in the lounge. Tensions were high today throughout the ship. As for my wife and I we were upgraded to a better cabin with no problems to speak of. After lunch there was a series of lectures. The first was by Dave Levy and Dave Eicher on Deep Sky objects in the Northern Hemisphere, followed by Mike Reynolds Ph.D. on meteorites. The lecture series ended with a presentation by Bob Jones Editor of Rock and Mineral Magazine. The lecture series was well received. At the conclusion of the lectures we soon arrived at the island of Mykonos. Since we arrived late, there was only time for shopping in the main street of town near the dock. There were many souvenir shops; however, we did not purchase anything. We watched the sunset from Mykonos then headed back to the boat. The buffet style breakfast, lunch, and dinner were excellent. We retired early that night to prepare for tomorrow's adventure in Turkey.

MARCH 28, 2006 — Departed at 8:00am from the ship that was docked on the Port of Kusadasi, Izmir Turkey. The bus proceeded up the mountain to a small stone house. The Virgin Mary is believed to have lived her last remaining years in this house. It is officially sanctioned by the Pope! Nevertheless the house was a single room dueling with an altar, candles, icons etc. It resembles a modern day Greek Orthodox Church. Our next stop were the Ruins of Ephesus. This was an impressive Greco-Roman City that was once part of Greece in antiquity. The site is only 10% excavated; however, it was still huge! There was also a theatre similar to Epidauris that could seat 25,000 people. It took an hour to walk through the ruins. This city also had running water. There was a library and a brothel. In fact there was even a secret passage from the library to the brothel. We boarded the ship and headed to the Monastery of Saint John on Patmos. During the boat ride there were a series of lectures by noted speakers Dave Levy, Wendee Levy, and Mike Babbich of Astronomy Magazine. When the boat docked we boarded a bus for a five minute ride to St. John's Monastery. Patmos has 400 monasteries on a small island. St. John is believed to have lived his remaining years in a cave on this island. The monastery resembled the Greek Orthodox Church of which I am all too familiar with. The guide informed the visitors of the rituals of the Greek Orthodox Church, A scenic view of the Sun setting over the Greek Islands was a sight to behold. Boarded the boat and headed toward the eclipse coordinates on the Mediterranean Sea. The weather today was perfectly clear- not a cloud in

the sky! Let's hope it's like this tomorrow.

MARCH 29, 2006 ECLIPSE DAY — Woke up at 7:00am this morning and had a quick breakfast. Then proceeded to "claim a spot" on the pool deck for observing the eclipse. The weather was perfectly clear- just a few high cirrus passing through posing no interference.

Following are the critical times for the eclipse.

Totality 3min 53sec

Sun altitude 58 degrees.

Approximate Coordinates:

27.76 deg EAST Longitude

34.05 deg WEST Latitude

First Contact: 12:30pm (9h 30m UT)

Second Contact: 1:48pm (10h 48m UT)

(Totality begins)

Sideslips: 1:50pm (10h 50m UT)

Third Contact: 1:52pm (10h 52m UT)

(Totality ends)

Fourth Contact: 3:10pm (12h 10m UT)

MARCH 29, 2006 ECLIPSE DAY (continued)

Fog started rolling in during the partial phases during first contact. It had completely covered the sun at one point. However, it was rather windy and the fog was moving through at a rapid rate. Soon it was clear again and when second contact began it was perfectly clear for the entire total phase. During the diamond ring the chromo sphere was visible along with two prominences around the 11 and 12 o'clock positions. As the corona came into view, the colors of the chromo sphere were no longer visible. The eclipse was now monochromatic. The sky became very dark during this eclipse. This is the darkest eclipse I had ever experienced. Around mid totality I could see another cloud bank building and heading toward the eclipsed sun. Fortunately there were only two minutes of totality left. The total phase was complete and within 5 minutes the sun was completely covered with fog. However the partial phases were visible through the clouds and easily recorded on my camcorder. I would not have been able to see the corona if this occurred during totality. The temperature dropped approx. 16 F. Upon conclusion of the eclipse Dave Levy gave a presentation, and then various amateurs showed off their eclipse digital JPG photos. Upon completion of the presentations, dinner was served. I slept very happily that evening.

MARCH 30, 2006 — Our first stop was the Palace of Knossos in Crete. This site was excavated by Sir Arthur Evans in the late 1800's. The Palace was the site of the earliest Greek civilization- the

Minoan. Much of this palace has been reconstructed. We then boarded the boat and were off to the Island of Santorini. Santorini a volcanic island. Actually the entire island is part of a Caldera. We climbed to the top of a volcano called Neokalemia. There were three craters containing molten lava several kilometers below the surface. The surrounding scenery at the top of the volcano was breathtaking. We then proceeded down the volcano and to our boat. The next stop was a hot spring off the island. Individuals that dove into the water indicated that it was not hot at all. The sea temp went from 40 F to 50 F. Some hot spring! We then proceeded by boat to a bus that drove up a steep slope. The sun was setting at this point what a magnificent sunset. The top of the slope was the City of Fira from which we took a cable car ride to the bottom of the mountain. Boarded the ship, the

M/V Ocean Monarch at nightfall. This was our last excursion to the Greek Islands. Now we head back to Athens.

MARCH 31, 2006 — Woke up early at 6:00am this morning. Breakfast at 7:00am. Then boarded the bus for the airport. It took approximately, one hour to get to the airport. Took off on time at 1:05pm from Athens Greece to JFK in New York. The plane flight took approximately 10.5 hours. I slept through most of it! Also slept through the in-flight movies. Arrived in JFK at 4:00pm. We had a five hour layover, so no need to hurry through customs. Departed JFK at 9:00pm and arrived at Tampa International Airport at 11:00pm. My in-laws picked us up and we drove another 1.5 hours to Longboat Key (Sarasota) Florida. Arrived at home at 1:30 am on April 1st, 2006. This concludes our Eclipse Expedition to Greece.

Some Memorable Nights

Gerry Dyck

The vast majority of my approximately 5,000 variable star observing sessions have been fairly routine affairs with no exceptional features to set them apart. This is not to say that they were boring; it only means that they do not stand out in my memory with the passing of the years. Then there are those special nights when something unusual happened, either in the sky or on the ground around me. These memorable nights stay with me to this day. I shall relate five of these to you, my fellow observers - five nights when I was rewarded by 1) good will, 2) good luck, 3) good location, 4) good connections and 5) good company.

Long-time observers will understand my greater enthusiasm for observing on moonless nights and my lesser zeal for the hunt when a bright moon is washing out all the fainter targets. Yet perhaps like me, you have been rewarded at least once for your determination to go out despite the diminished quality of the sky. I recall one such instance in the late 1980s. I had been observing the field of the variable star DO Draconis for about six years without ever seeing that star outburst above the limiting magnitude of my telescope. Then, unexpectedly, DO brightened to magnitude 12.4 on a night of the full moon when I had only barely motivated myself to open the observatory. The memory of that satisfaction has been sufficient to get me outside on other marginal nights when other

useful observations were made.

I recall another instance when a memorable observation was made because of serendipitous conditions beyond my control, except that I was there when it happened. It was during August of 1989 when our extended family was having a weekend reunion at a camp in southern Michigan. A total lunar eclipse was to happen on Saturday night with the moon on the border between Capricornus and Aquarius. I set up our 10-inch reflector for viewing the eclipse and any occultations which might happen during the event. At the appointed time the eclipse began, culminated and ended under excellent conditions. During totality I saw that no occultations were imminent, so I began sweeping the sky near the moon and stumbled onto the field of VZ Aquarii, one of my program stars. VZ was in outburst! I am sure I would not have been able to see and report this rare event except for the coincidence of the earth's shadow on the moon only three degrees away.

My observation of RZ Sagittae at <13.6 on the evening of August 8, 1995 was not memorable in itself. It is highlighted in my memory for two reasons: it was my 100,000th variable star observation and it was made in the shadow of the dome of the 100-inch Hale reflector at Mt. Wilson. In the summer of 1995 I was privileged to be invited by Prof. Joe Snider of Oberlin College to join the staff of CUREA, a

program which allows undergraduates to do hands-on research in astronomy during a two-week stay on Mt. Wilson. My part in the program was to introduce the students to variable star observing. Unfortunately, we were on the mountain during the waxing moon and light pollution from the valley was rather bad. Nevertheless, it was a good time and I was able to continue my personal observing program using a small borrowed instrument. It was a very special place at which to reach a special milestone.

When I saw YZ Cancri rise in brightness from <14.4 to 13.8 on the night of March 4, 1987, I was sure it was the beginning of a much-anticipated outburst. I ran from the observatory to the telephone with unusual speed, for YZ was one of the targets of the International Ultra-violet Explorer (IUE) satellite team, which had just begun a one-week run in collaboration with the AAVSO. Their purpose was to study the spectra of dwarf novae during the onset of an outburst. Janet Mattei took my information on YZ and relayed it to the observing team in Madrid. They instructed the IUE telescope to target YZ Cancri and

useful outburst data were gathered. It was the first time I experienced the excitement of a communication link between our backyard observatory and a team of astronomers operating a telescope in earth orbit.

One night last summer the cataclysmic variable stars FO Aquilae and AY Lyrae went into outburst at the same time. This coincidence is not extremely rare, but it sent my mind back to another time in 1985 when the same two stars were up on the same night. That night I was in the company of three dear people: my wife Helga and Clyde & Patty Tombaugh. The Tombaughs had graciously responded to our request to drop in and visit them at their home in Las Cruces a year after their visit to Seagrave. After dark I set our telescope in their backyard for a session of variable stars and other summer targets. Clyde looked through our telescope and we looked through several of his. The coincidental outbursts of FO and AY on that special night are linked in my memory to the fulfillment of a dream – for one Kansas farm boy to meet a more illustrious Kansas farm boy who had become one of his heroes.

NASA's Space Place

Who Wants to be a Daredevil?

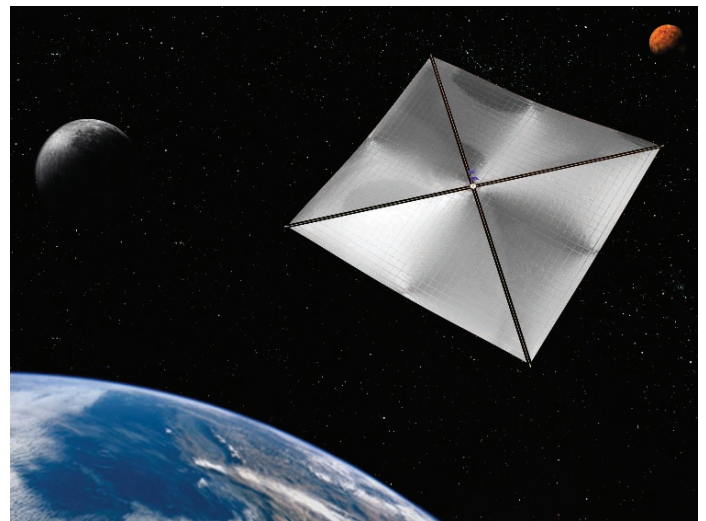
By Patrick L. Barry and Dr. Tony Phillips

When exploring space, NASA naturally wants to use all the newest and coolest technologies – artificial intelligence, solar sails, onboard supercomputers, exotic materials.

But “new” also means unproven and risky, and that could be a problem. Remember HAL in the movie “2001: A Space Odyssey”? The rebellious computer clearly needed some pre-flight testing.

Testing advanced technologies in space is the mission of the New Millennium Program (NMP), created by NASA's Science Mission Directorate in 1995 and run by JPL. Like the daredevil test pilots of the 1950s who would fly the latest jet technology, NMP flies new technologies in space to see if they're ready for prime time. That way, future missions can use the technologies with much less risk.

Example: In 1999, the program's Deep Space 1 probe tested a system called “AutoNav,” short for Autonomous Navigation. AutoNav used artificial intelligence to steer the spacecraft without human intervention. It worked so well that elements of AutoNav were installed on a real mission, Deep



Artist's rendering of a four-quadrant solar sail propulsion system, with payload. NASA is designing and developing such concepts, a sub-scale model of which may be tested on a future NMP mission.

Impact, which famously blasted a crater in Comet Tempel 1 on July 4, 2005. Without AutoNav, the projectile would have completely missed the comet.

Some NMP technologies “allow us to do things that we literally could not do before,” says Jack Stocky, Chief Technologist for NMP. Dozens of innovative technologies tested by NMP will lead to satellites and space probes that are smaller, lighter, more capable and even cheaper than those of today.

Another example: An NMP test mission called Space Technology 9, which is still in the planning phase, may test-fly a solar sail. Solar sails use the slight pressure of sunlight itself, instead of heavy fuels, to propel a spacecraft. Two proposed NASA missions would be possible only with dependable solar sails—L1 Diamond and Solar Polar Imager—both of which would use solar sails to fly spacecraft that would study the Sun.

“The technologies that we validate have future missions that need them,” Stocky says. “We try to target [missions] that are about 15 to 20 years out.”

A menagerie of other cool NMP technologies include ion thrusters, hyperspectral imagers, and miniaturized electronics for spacecraft navigation and control. NMP focuses on technologies that have been proven in the laboratory but must be tested in the extreme cold, vacuum, and high radiation environment of space, which can’t be fully recreated in the lab.

New NMP missions fly every year and one-half to two years, taking tomorrow’s space technology for a daredevil test drive.

Skyscrapers visit the General Nathan Twining Observatory, operated by the Albuquerque Astronomical Society. Photo by Dan Lorraine.



Secretary's Report

Joel Cohen, Secretary
Monthly Meeting
April 7, 2006
Skyscrapers Meeting Hall

Our speakers for the evening were Clara Eberhardy and Carolyn Ernst. Both are Post Graduate Students at Brown University and working with Peter Schulz to analyze the collected data from the Deep Impact Mission last year to Comet Tempel 1. They brought us an outstanding presentation on what we have learned about comets in general and Tempel 1 in particular.

After a brief break with refreshments, our business meeting was called to order by Dave Huestis at 9:14 PM.

Secretary's Report - accepted as published

Treasurer's Report - accepted as read and posted

Trustee's Report -. Jack Szelka reported that there were three recent Star Parties. Jack thanked those members who were able to attend. Dave added that there was \$237.00 of income generated by these Star Parties. Both the Meade scopes have been returned. The 12" is set up and working well and has been collimated. The 16" base is back but not yet installed. There is some general maintenance which will need a work party for both the buildings and grounds. The tiles that lifted on the floor of the Clark Dome were the result of the door to the deck left open and moisture penetration during a rain storm.

Upcoming Speakers - Glenn Jackson announced that the speaker for May 12th is Dr. George Greenstein and June will be Miguel Morales. He is still working on a speaker for the July meeting.

Librarian's Report - Dan Lorraine reported that a DVD of Contact was donated by Tom and Louise Barbish. Books donated by Dan Lorraine included Meade Star Charts, The Planets, A Different Universe, World Without Time, The Road to Reality, Schrodinger's Rabbits and A Briefer History of Time.

Historian's Report - Dave Huestis called our attention to his article in the Skyscraper detailing the friendship and communication between Frank Seagrave and Percival Lowell.

New Business - Applications for membership were received from Nichole Mechnig and Gail Scanlon. Dave announced that there will be a budget presented for both the organization in general and Astro Assembly in particular. Both budgets will be discussed at the Executive Board meeting. All interested members are encouraged to attend and participate in the E Board meeting. Dave showed a graphic projection delineating where the organization's funds have come from and gone to in the last fiscal year.

Glenn Jackson moved to accept the proposed budget as recommended by the E Board. The motion was seconded by Jerry Jeffrey.

Old Business - The memberships of Bernie Kubaska and Mark Hartonchik were approved unanimously.

Good of the Organization - Dave thanked Gerry Dyck for his recent article in the Skyscraper. The trip to Van Vleck Observatory is planned for April 15th. Dan Lorraine announced that all hanging chads had been accounted for and the election results were complete. The slate of Officers elected for the upcoming fiscal year are Dave Huestis, President; Glenn Jackson, 1st Vice President; Ted Ferneza, 2nd Vice President; Allen Schenck, Treasurer; Mercedes Rivero, Secretary; Jerry Jeffrey and Jim Brenek, Members at Large; Tracey Haley, Trustee.

Bob Napier reported that the Comet 73P Schwassman Wachman has started to disintegrate into a number of pieces, perhaps as many as 40 fragments of varying sizes within the range of moderate telescopes, perhaps as bright as 3rd magnitude. Pleiades was occulted by a crescent moon observed briefly by a few members. Some members saw Story Musgrave speak at Groton High School and Dolores Rinaldi donated an autographed photo of Story to the organization. Gerry Dyck was observing from a very dark sky at Garry Walker's site in New Hampshire.

Bob Horton said Ladd Observatory was open on Tuesday evenings and the views of Saturn have been extraordinary. A video of the recent Solar Eclipse was sent in by Greg Shanos and shown to the membership. Dave reminded us that the May meeting will be held on May 12th because of the trip to New Mexico and that the E Board meeting is April 14 at 7:30 PM.

Adjournment - 9:57 PM



Brown University graduate students Clara Eberhardy and Carolyn Ernst presented us with an update of the research being done on the data from the Deep Impact Mission with Comet Tempel I. Photos by John Kocur and Marian Juskuv.

Skyscrapers, Inc. Budget Proposal Fiscal Year 2006-2007

Category	Expenses	
	Actual 2005-2006	Proposed 2006-2007
Electric	136.90	150.00
Propane	66.70	120.00
Printing(non AA)	110.95	120.00
Newsletter postage	49.29	55.00
Domain Name	74.97	25.00
Subscriptions	61.95	70.00
Grass Mowing	125.00	150.00
Incorp. Fee	75.00	20.00
Trustee Expense	203.18	500.00
Refreshments	608.40	450.00
Property Insurance	2307.00	2537.00
BJ's	40.00	0.00
Other	50.86	50.00
Pres. Discretionary Fund	0.00	150.00
Cookout	728.18	650.00
Meade Insurance	904.96	0.00
Permanent Port-a-John	0.00	270.00
Astro Assembly	7958.00	* 4007.00
	\$13501.34	\$9324.00

Category	Income	
	Actual 2005-2006	Proposed 2006-2007
Dues	3100.00	3550.00
Astro Assembly	8958.00	* 4807.00
Star Party Donations	648.00	650.00
S&T sales	1130.00	0.00
Other Donations	120.00	150.00
Cookout	343.00	455.00
	\$14299.00	\$9612.00



During the visit to Chaco Canyon, New Mexico, several intrepid Skyscrapers made the 7+ mile round trip hike to the supernova petroglyph, depicting the 1054 Crab supernova. Photos by Jim Hendrickson.

* These numbers were derived using scenario #2 (110 attendees) of Ted Ferneza's proposed Astro Assembly budget, which will be introduced at the May meeting. The expense and income for the Grille and Banquet are included in these projections.

Directions to Seagrave Memorial Observatory

From the Providence area:

Take Rt. 6 West to Interstate 295 in Johnston and proceed west on Rt. 6 to Scituate. In Scituate bear right off Rt. 6 onto Rt. 101. Turn right onto Rt. 116 North. Peeptoad Road is the first left off Rt. 116.

From Coventry/West Warwick area:

Take Rt. 116 North. Peeptoad Road is the first left after crossing Rt. 101.

From Southern Rhode Island:

Take Interstate 95 North. Exit onto Interstate 295 North in Warwick (left exit.) Exit to Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.

From Northern Rhode Island:

Take Rt. 116 South. Follow Rt. 116 thru Greenville. Turn left at Knight's Farm intersection (Rt. 116 turns left) and follow Rt. 116. Watch for Peeptoad Road on the right.

From Connecticut:

- Take Rt. 44 East to Greenville and turn right on Rt. 116 South. Turn left at Knight's Farm intersection (Rt. 116 turn left) and follow Rt. 116. Watch for Peeptoad Road on the right.
- Take Rt. 6 East toward Rhode Island; bear left on Rt. 101 East and continue to intersection with Rt. 116. Turn left; Peeptoad Road is the first left off Rt. 116.

From Massachusetts:

Take Interstate 295 South (off Interstate 95 in Attleboro.) Exit onto Rt. 6 West in Johnston. Bear right off Rt. 6 onto Rt. 101. Turn right on Rt. 116. Peeptoad Road is the first left off Rt. 116.



47 PEEPTOAD ROAD
NORTH SCITUATE, RI 02857